

What is claimed is:

1. A wireless endoscope for wirelessly transmitting image signals, said endoscope comprising:
 - a tubular portion including a distal end, a proximal end and a central
 - 5 passageway extending therethrough;
 - a handle connected to said proximal end of said tubular portion;
 - an image sensor positioned in said tubular portion for receiving images of a surgical site, said image sensor producing an image signal;
 - circuitry means electrically coupled to said image sensor for timing and
 - 10 control of said image sensor;
 - video processing means electrically communicating with said image sensor for processing said image signal and converting said image signal to a post-video signal;
 - a radio transceiver element mounted in said endoscope and electrically
 - 15 communicating with said video processing means for wirelessly transmitting the post-video signal;
 - a power supply mounted in said endoscope for powering said endoscope; and
 - a radio transceiver module placed remote from said endoscope for
 - 20 receiving said post-video signal and for electrically transferring said post video signal to a video display for viewing video images produced by the video display.
2. A device, as claimed in claim 1, wherein:

said wireless transmitting by said radio transceiver element is conducted by a Bluetooth communications standard.

3. A device, as claimed in claim 1, wherein:

said wireless transmitting by said radio transceiver element is conducted by an IEEE 802.15.13 communications standard.

4. A device, as claimed in claim 1, wherein:

said image sensor further includes a pixel array of CMOS pixels incorporated in said image sensor for receiving images thereon.

5. A device, as claimed in claim 1 wherein:

said circuitry means for timing and control is placed adjacent said image sensor in said tubular portion.

6. A device, as claimed in claim 1 wherein:

said circuitry means for timing and control is placed on a plane along with said image sensor.

7. A device, as claimed in claim 1 wherein:

said circuitry means for timing and control is placed in said handle.

8. A device, as claimed in claim 1 wherein:

said video processing means is placed adjacent said image sensor in said tubular portion.

9. A device, as claimed in claim 1 wherein:

said video processing means is placed adjacent said image sensor in said tubular portion and longitudinally aligned with said image sensor.

10. A device, as claimed in claim 1, wherein:

said video processing means is placed in said handle.

11. A device, as claimed in claim 1, wherein:

said image sensor is placed on a first plane, and said circuitry means for timing and control and said video processing means are placed on a second plane.

12. A device, as claimed in claim 11, wherein:

said second plane is longitudinally aligned with said first plane in said tubular portion.

13. A device, as claimed in claim 11, wherein:

said second plane is located in said handle.

14. A device, as claimed in claim 1, further including:

a supplementary circuit board electrically coupled to said image sensor for enhancing said pre-video signal prior to reception by said video processing board.

TOP SECRET FRODO

15. A device, as claimed in claim 1, further including:
at least one light fiber positioned around a periphery of said distal end
for illuminating a surgical site.

16. A device, as claimed in claim 1, further including:
a source of light mounted in said endoscope; and
at least one light fiber communicating with said source of light and
positioned in said tubular portion for illuminating a surgical site.

17. A device, as claimed in claim 1, wherein:
said power source includes a rechargeable battery.

18. A device, as claimed in claim 1, wherein:
said power source includes a removable and rechargeable battery, said
battery adapted for recharge with a remote charging circuit.

19. A device, as claimed in claim 1, wherein:
said power source and said radio transceiver element are mounted a
common housing which is removable with respect to said endoscope for
selective recharge or replacement of said power source and for selective
5 replacement of said radio transceiver element upon becoming unserviceable.

20. A wireless endoscope for wirelessly transmitting image signals,
said endoscope comprising:

a tubular portion including a distal end, a proximal end and a central
passageway extending there through;

- 5 a handle connected to said proximal end of said tubular portion;
 an image sensor positioned in said tubular portion for receiving images
 of a surgical site, said image sensor producing a pre-video signal;
 circuitry means electrically coupled to said image sensor for timing and
 control of said image sensor;
- 10 a radio transceiver element mounted in said endoscope and electrically
 communicating with said image sensor for wirelessly transmitting the pre-video
 signal;
- a power supply mounted in said endoscope for powering said endoscope;
 a control box placed remote from said endoscope, said control box
- 15 including a radio transceiver module for receiving said pre-video signal and for
 electrically transferring said pre-video signal for further processing; and
- video processing means mounted in said control box and electrically
 coupled to said radio transceiver module for processing said pre-video signal
 and converting said pre-video signal to a post-video signal, said video
- 20 processing means communicating with a video display for viewing video images
 produced by said video display.

21. A device, as claimed in claim 20, wherein:
 said wireless transmitting by said radio transceiver element is conducted
 by a Bluetooth communications standard.

22. A device, as claimed in claim 20, wherein:
 said wireless transmitting by said radio transceiver element is conducted
 by an IEEE 802.15.13 communications standard.

5

24. A device, as claimed in claim 20, wherein:
said control box wirelessly communicates with said video display by
secondary wireless transmission means.

said secondary wireless transmission means includes a secondary wireless transmitter mounted in said control box and electrically communicating with said video processing means for wirelessly transmitting the post video signal, and a secondary wireless receiver placed remote from said control box for receiving the post video signal, and electrically transferring the post video signal directly to the video display.

said image sensor further includes a pixel array of CMOS pixels incorporated in said image sensor for receiving images thereon.

said circuitry means for timing and control is placed adjacent said image sensor in said tubular portion.

28. A device, as claimed in claim 20, wherein:

said circuitry means for timing and control is placed on a plane along with said image sensor.

29. A device, as claimed in claim 20, wherein:

said circuitry means for timing and control is placed in said handle.

30. A device, as claimed in claim 20, wherein:

said image sensor is placed on a first plane, and said circuitry means for timing and control is placed on a second plane.

31. A device, as claimed in claim 30, wherein:

said second plane is longitudinally aligned with said first plane in said tubular portion.

32. A device, as claimed in claim 30, wherein:

said second plane is located in said handle.

33. A device, as claimed in claim 20, further including:

a supplementary circuit board electrically coupled to said image sensor for enhancing said pre-video signal prior to reception by said video processing board.

34. A device, as claimed in claim 20, further including:

at least one light fiber positioned around a periphery of said distal end for illuminating a surgical site.

35. A device, as claimed in claim 20, further including:
a source of light mounted in said endoscope; and
at least one light fiber communicating with said source of light and
positioned in said tubular portion for illuminating a surgical site.
36. A device, as claimed in claim 20, wherein:
said power source includes a rechargeable battery.
37. A device, as claimed in claim 20, wherein:
said power source includes a removable and rechargeable battery, said
battery adapted for recharge with a remote charging circuit.
38. A device, as claimed in claim 20, wherein:
said power source and said radio transceiver element are mounted a
common housing which is removable with respect to said endoscope for
selective recharge or replacement of said power source and for selective
replacement of said radio transceiver element upon becoming unserviceable.
39. A wireless endoscope for wirelessly transmitting image signals,
said endoscope comprising:
a tubular portion including a distal end, a proximal end and a central
passageway extending there through;
a handle connected to said proximal end of said tubular portion;
an image sensor positioned in said tubular portion for receiving images
of a surgical site, said image sensor producing a pre-video signal;

a radio transceiver element mounted in said endoscope and electrically
 communicating with said image sensor for wirelessly transmitting the pre-video
 10 signal;
 a power supply mounted in said endoscope for powering said endoscope;
 a control box placed remote from said endoscope, said control box
 including a radio transceiver module for receiving said pre-video signal and for
 electrically transferring said pre-video signal for further processing;
 15 timing and control circuitry means mounted in said control box and
 electrically coupled to said radio transceiver module for producing control
 signals to control functioning of said image sensor, said radio transceiver
 module wirelessly transmitting said control signals to said radio transceiver
 element and said radio transceiver element receiving said control signals and
 20 transferring the control signals to the image sensor; and
 video processing means mounted in said control box and electrically
 coupled to said radio transceiver module for processing said pre-video signal
 and converting said pre-video signal to a post-video signal, said video
 processing means communicating with a video display for viewing video images
 25 produced by said video display.

40. A device, as claimed in claim 39, wherein:

said wireless transmitting between said radio transceiver element and
 said radio transceiver radio module is conducted by a Bluetooth
 communications standard.

41. A device, as claimed in claim 39, wherein:

said wireless transmitting between said radio transceiver element and said transceiver radio module is conducted by an IEEE 802.15.13 communications standard.

42. A device, as claimed in claim 39, wherein:

said control box communicates with said video display by a hard wired connection.

43. A device, as claimed in claim 39, wherein:

said control box wirelessly communicates with said video display by secondary wireless transmission means.

44. A device, as claimed in claim 39, wherein:

5 said secondary wireless transmission means includes a secondary wireless transmitter mounted in said control box and electrically communicating with said video processing means for wirelessly transmitting the post video signal, and a secondary wireless receiver placed remote from said control box for receiving the post video signal, and electrically transferring the post video signal directly to the video display.

45. A device, as claimed in claim 39, wherein:

said image sensor further includes a pixel array of CMOS pixels incorporated in said image sensor for receiving images thereon.